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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/080,785 | 02/22/2002 | David J. Leidel | 1301-1125 | 2977 |
| 32376 | 7590 | 07/27/2004 | EXAMINER | |
| LAWRENCE R. YOUST DANAMRAJ & YOUST, P.C. 5910 NORTH CENTRAL EXPRESSWAY SUITE 1450 DALLAS, TX 75206 | | | JENKINS, DANIEL J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1742 | |

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/080,785 | Applicant(s) LEIDEL ET AL. | |
| | Examiner Daniel J. Jenkins | Art Unit 1742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/21/04</u> . | 6) <input type="checkbox"/> Other: _____ |

1. The Examiner has carefully considered Applicant's Response of 4/21/04. The Examiner does not find Applicant's Remarks persuasive. In particular, the Examiner finds that Mravic and Reese are analogous art, that of heavy metal powder metallurgy, the art that one of ordinary skill in the art would find reasonably pertinent to the particular problem with which the inventor was involved (see In re Wood, 599 F.2d 1032, 202 USPQ 171, CCPA 1979).

Secondly, the claims do not read away from any "use" of a shaped charge liner as downhole perforating operations.

Thirdly, the Examiner finds that the Application of the bullet of Mravic, to not penetrate a steel backing, is not contradictory to the combination. Mravic is used for the teaching of using a range of W in order to tailor ballistic characteristics. One of ordinary skill could use this teaching, understanding that the range of W in Mravic. The test for obviousness is not whether the features of the reference may be bodily incorporated into the other to produce the claimed subject matter, but simply what the references make obvious to one of ordinary skill in the art (see In Re Bozek, 163 USPQ 545, (CCPA 1969).

Lastly, Mravic et al. teaches the high density constituent to an upper limit of about 90%, which reads upon Applicant's claimed low end of range. Thus one practicing Applicant's invention could form a liner with 90% W, the same as Mravic et al. (The Examiner notes that this limitation is not present in all of Applicant's independent claims, which allow for lower W amounts.)

However, the Examiner does find that the teaching of Mravic et al. disclose the application of his disclosure to shaped charge liners (see last sentence of Abstract). The Examiner makes a new rejection based on Mravic et al. as a primary reference, and accordingly, does not make this rejection final.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. '791 (Reese et al.) in view of Mravic et al. in view of Reese et al. '791 and Goetzel.

Mravic et al. disclose the invention substantially as claimed. Mravic et al. disclose a shaped charged liner (last sentence of Abstract) formed by the method comprising:

providing a high density constituent of a material selected from a group comprising tungsten (col. 2, line 18);

providing a low density constituent (col. 2, lines 22-24);

mixing the high and low density constituents to form a mixture (col. 5, lines 60 to col. 6, line 23) ; and

forming the mixture into a shaped charge liner (see last sentence of Abstract).

Mravic et al. further disclose wherein the low density constituent comprises tin, zinc, iron, nickel, cobalt and copper (col. 2, lines 22-23).

Mravic et al. further disclose wherein the tungsten constituent is present from 70% to more than 90% (see Fig. 1).

Mravic et al. further disclose wherein the mixture comprises carbon (graphite) (col. 5, line 64).

Mravic et al. is silent as to the combination of the shaped charge liner with a housing and explosive charge.

Reese et al. teaches that a shaped charge liner is used with a housing and explosive charge (col. 1, 23-47).

It would have been obvious to one having ordinary skill in the art to form the shaped charge liner in the combination with a housing and explosive as taught by Reese et al. in the invention of Mravic et al. in order to apply the shaped charge liner to such applications.

However, Mravic et al. in view of Reese et al. do not disclose adding oil to the mixture. Goetzel teaches that oil is an equivalent to graphite in the same field of endeavor for the purpose of adding lubricant to the mixture. It would have been obvious to one having ordinary skill in the art at the time of the invention to add oil in place of graphite in the invention of Mravic et al. as taught by Goetzel in order to provide lubrication.

However, Mravic et al. in view of Reese et al. do not disclose further disclose substituting molybdenum to the mixture. It is common knowledge in the prior art to substitute molybdenum for cobalt or nickel in the same field of endeavor, since the substitution is known in the art.

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However, Mravic et al. in view of Reese et al. do not disclose substituting lead for tungsten.


Mravic et al. discloses tungsten and lead as equivalents, but selects tungsten in his invention for applications wherein lead is not a desirable contaminant.

It would have been obvious to one having ordinary skill in the art at the time of the invention to partially substitute lead for tungsten in applications where environmental concerns over lead use are not as important as the cost savings realized by the relative less cost of lead over tungsten.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 571-272-1242. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1242. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel J. Jenkins
Primary Examiner
Art Unit 1742

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